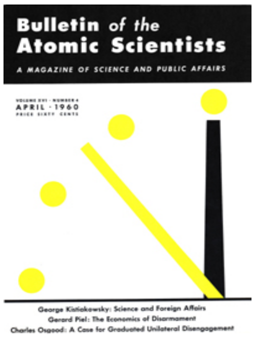

Bulletin of the Atomic Scientists

ISSN: 0096-3402 (Print) 1938-3282 (Online) Journal homepage: http://www.tandfonline.com/loi/rbul20

Rockefeller's Civil Defense Program

Ralph E. Lapp

To cite this article: Ralph E. Lapp (1960) Rockefeller's Civil Defense Program, Bulletin of the Atomic Scientists, 16:4, 134-136, DOI: 10.1080/00963402.1960.11454075

To link to this article: http://dx.doi.org/10.1080/00963402.1960.11454075

Published online: 15 Sep 2015.

Submit your article to this journal

View related articles

Full Terms & Conditions of access and use can be found at
http://www.tandfonline.com/action/journalInformation?journalCode=rbul20

Download by: [Purdue University Libraries] **Date:** 05 November 2017, At: 08:14

Rockefeller's Civil Defense Program

RALPH E. LAPP

CIVIL defense faces a critical proof-test in New York State. Governor Nelson A. Rockefeller has made public recommendations[1] (see accompanying summary) for a state-wide system of fallout shelters. The New York program is estimated to cost about $100 per shelter occupant for minimum protection. Considering the special nature of the New York City area (high population density and limited areas for low-cost shelter construction), it would appear that a minimum price tag of $1 billion would apply for New York State's civil defense program.

This cost factor may be the pivotal issue as State legislators wrestle with the difficult civil defense issue. However, cost is only one factor, and before the fallout shelter program is put into effect, there will be prolonged debate over the value of shelters. The Rockefeller Report, anticipating this, sets forth a total of seven strategic advantages in making a case for population protection. It lists its value in relation to our bargaining position, our deterrent posture, our susceptibility to blackmail, our military posture, and finally, as reason No. 7—"protection of our people creates the ability to endure a nuclear war, recover from the attack, and restore something like our former way of life."

It is most curious that population protection should be given as reason No. 7 and then be framed in a collective sense. The case for civil defense, so far as the average person is concerned, boils down to self-preservation. He is not apt to be persuaded on the basis of strategic considerations and deterrent policies.

Apart from the war-gamer's approach, the Rockefeller proposal is a bold recognition of the fact that nuclear hazards pose a tremendous challenge to human survival in the event of surprise attack. The report *Survival in a Nuclear Attack* is subtitled, "Plan for Protection from Radioactive Fallout." As such the report concentrates upon fallout, stating that "it is extremely difficult to protect against the immediate close-by effects of nuclear detonation." On this score, the report adds:

> In the vicinity of a nuclear detonation, nearly all life would be destroyed by blast, thermal effects, and prompt nuclear radiation. Only people who were secure in strong blast-proof shelters would have any chance of survival. This area of devastation would extend many miles with the largest weapons.
>
> The initial heat effect is of relatively short duration, but is so intense that it can ignite combustible materials and inflict second degree burns more than 25 miles away.
>
> The blast effect is also of a momentary nature, but can be so powerful as to completely collapse conventional building structures at distances up to 10 miles and cause substantial damage up to 25 miles.

A pessimist could interpret these statements as meaning that the New York planners are writing off their central metropolitan populations. A cynic might conclude that the committee studying fallout regarded protection against the primary effects of nuclear weapons as the responsibility of some other committee. A realist would acknowledge that the planners recognized the impossibility of civil-defending an area such as central New York City.

Fallout shelters are a very important part of an adequate civil defense program, but they should not be divorced from consideration of other weapon effects. Most good fallout shelters will have built-in resistance to blast, and this point should have been considered quantitatively in the Rockefeller Report. With respect to the fire hazard most of the shelters recommended in the report would provide little protection to people if the house above the basement shelter burned and buried the shelter in fiery debris.

Nothing is mentioned in the Rockefeller Report or in the bulky report, "Shelter Designs for Protection Against Radioactive Fallout,"[2] about the fire-storm potential in metropolitan areas. The probable incidence of fire-storms due to the confluence of myriads of small fires produced by a megaton explosion was discussed in the 1959 Holifield Nuclear War Hearings.[3] Dr. William T. Ham stated: "It is probable that burns from secondary fires engendered by the bomb would represent a major proportion of the casualties even for a population which had received warning of imminent attack." Dr. Ham described the probable effects of detonation of a 10-megaton bomb over New York City and asserted that there would be grave thermal danger over an area of 1,900 square miles, including the danger of asphyxiation due to oxygen consumption in the fire-storm.

The significance of the fire hazard is that it discredits many basement shelter designs and forces one to resort to integral structures outside the residence or office building. This raises the cost of such shelters and restricts their construction due to lack of available areas in densely populated regions. The fire-storm hazard severely complicates shelter design because of the requirement for oxygen supply. To date the Office of Civil and Defense Mobilization has not faced up to this vexing dilemma of shelter design. It is understandable that the problem remains unresolved at the State level.

The nature of the triple threat—blast,

---

[1] Report of the Committee on Fallout Protection, State of New York (Feb. 15, 1960).

[2] Report to the Institute of Public Administration prepared under a grant from The Ford Foundation to Voorhees, Walker, Smith, Smith, and Haines, 101 Park Ave., New York 17, N.Y. (Feb. 1, 1960).

[3] See pages 230-56, Vol. I, *Biological and Environmental Effects of Nuclear War*, Hearings before the Special Subcommittee on Radiation, Joint Committee on Atomic Energy (1959).

fire, and radiation—is such that no civil defense plan that is likely to be practical will measure up to the hazards. Any shelter plan will have to be a compromise offering an imperfect solution to the problem of survival. However, the problem is not solved even in compromise by a single-facet approach to a complex issue.

In presenting his radiation shelter proposal to the people of New York State, Governor Rockefeller is showing political courage. The American people have demonstrated a notable reluctance to accept responsibility for the bomb. The bomb is something they would prefer not to think about, and the shelter proposal hits not so much at the pocket book as at the conscience. The American people are dimly aware that the U.S. deterrent has as its real target Russian homes and Russian people, but as yet they have not really associated themselves with the bomb.

"It is unthinkable," the Rockefeller Report begins, "that we should continue in our present state of almost complete civilian unpreparedness against nuclear attack." Unthinkable, yes, but no more irrational than the decision of the U.S. Air Force to locate its ICBM bases in proximity to American cities and towns. The Department of Defense has plans for siting 270 "hardened" ICBM bases within continental U.S. Even hardened configurations capable of withstanding blast pressures up to 100 pounds per square inch (corresponding to the blast of an 8-megaton explosion about 1 mile away) are vulnerable to enemy attack. The high accuracy[4] of ICBM's makes base hardening an obsolescent concept even before the first hardened base is completed. Thus the hardened Atlas-Titan complex assumes a Maginot character. The Air Force will challenge this view on the basis that operational ICBM's will be less accurate than those fired as leisurely tests. However, a one-mile operational CEP should be attainable within a few years. The writer believes that Atlas-Titan sites act as targets of attraction—as magnets drawing enemy fire.

Nine such Maginot magnets will be located within a radius of 35 miles from the Plattsburgh, N.Y., air base.[5] These Atlas bases will be about 150 miles from the Governor's residence at Albany, but the prevailing winds will probably carry fallout to the northeast. Nonetheless, the location of ICBM's in the northeastern U.S. reflects a lack of coordination, if not of sanity, in national security planning.

The basic policy recommended by the Rockefeller Report is that the individual or the employer or the community provide easy-to-reach shelter. The individual has a choice of building a basement or a backyard shelter at his own expense, or joining with his neighbors to cooperate in promoting a group shelter. Schools and industrial plants are urged to make use of existing shelter but also to encourage a go-home-to-shelter plan. The report is fuzzy on alert times, but it seems to be a tacit assumption that the attack is staged by manned aircraft:

> Should an attack occur, Civil Defense authorities would, of course, be in charge. Survivors within one hour of home would go home. Fallout might not arrive, in fact, for some time after the hour, and people would be instructed accordingly.

During this time children and parents are urged to go to their home shelters. This is a natural recognition of the parental instinct, but it becomes a hazardous proposition in the missile age where alert times are very short. Furthermore, it deploys masses of people in the open where they are vulnerable to repetitive attack. There is likely to be very little "hard" information available very soon after a nuclear attack, and it would seem prudent to recognize this fact.

From a purely technical viewpoint, the Rockefeller Report is a workmanlike job, and there is much to commend it. As might be expected, it is neatly illustrated and tailored. It does contain a few technical miscues, as for example, the inclusion of radiation dosage diminution from a point source rather than from planer sources which are representative of fallout fields. There is also a minimization of long-term contamination problems as illustrated by the following excerpt on post-attack farming:

> Land is not likely to be rendered dangerous for crop production except in areas of the very highest intensity of radiation. Here, deep plowing may restore the land to safe production.
>
> The two principal obstacles to farm operation in the months following attack would probably be the lack of fuel for machinery and the exposure of people working in the fields.

Much of the rich agricultural land extending from Buffalo to Albany might be contaminated above a level of 100 curies of strontium-90 per square mile. This could constitute a very serious long-term hurdle for post-attack agriculture.

Again, this food problem is another facet of the civil defense problem. Food contamination would involve additions to the irradiation of humans who would presumably be fairly heavily irradiated, although to a sub-lethal level, by unavoidable fallout. In the early post-attack period one would have to rely upon packaged foods, and for a year or two after the attack it might be necessary to accept internal doses due to food contamination in the range of 50 rads. This is a problem to which some solutions are possible; the government has yet to publish any unclassified study dealing with the details of post-attack diet. Given the average citizen's comprehension of radiocontamination, there is likely to be deep skepticism about one's chances of surviving in this post-attack era.

This skepticism is an underlying reason why many people refuse to take civil defense or shelters seriously. They feel that if bombs start falling, then "all is lost" and "we have had it"—meaning that there will be nothing left to live for. This, after all, is the predominant theme of Nevil Shute's *On The Beach*. Others fear that building shelters will tend to condition us for nuclear war and encourage brink-walking. Many church and "peace" people are most outspoken on this score, whereas they seem to show less concern for ICBM's practically in their backyard. There are also some political leaders who counsel against backing a strong civil defense on the basis that it weakens a firm position on peace.

---

[4] Soviet ICBM's are known to have a CEP of less than 2 miles, and based upon systems improvements in guidance it is a reasonable estimate that by the time our ICBM bases are in operation the CEP will shrink to 1 mile or less. CEP is the circular probable error or the radius of a circle within which 50 per cent of the missiles fall.

[5] According to an A.P. dispatch of Jan. 26, 1960 (*New York Times*), the U.S. Air Force announced the construction of these underground Atlas installations. These are expected to be completed by 1962.

Governor Rockefeller and his advisors knew that they were bucking the tide of public opinion and that they were recommending a very unpopular measure. It is to their credit that they had the courage to be candid. However, their study of the civil defense problem reflects a too limited approach of a committee assigned to study fallout protection. As a result of this defect the civil defense plan proposed can be contested. Allowing for these deficiencies, the Rockefeller Report represents the best attempt any state has made to face up to the enigma of civil defense. There is, however, grave doubt that the challenge of the civil defense problem can be met at the state level; inevitably, the issue will have to be faced up to by the federal government.

★ ★ ★

THE PROPOSAL

IT IS time for action," said Governor Rockefeller as he presented the following proposal to the New York State Defense Council on February 17, 1959:

1. The legislature make fallout shelter construction mandatory in all places of residence and all business structures, subject to appropriate adjustments for hardship cases.

2. Such a mandatory requirement becomes effective for (*a*) new structures started after January 1, 1962 and (*b*) existing structures on and after July 1, 1963.

3. The legislature require minimum survival supplies and equipment to be maintained and available for the expected occupants of a shelter on and after the date on which the shelter itself becomes mandatory.

4. The minimum standards of shelter construction be so fixed that (*a*) the home, and places of residence, will be the focal point for shelters and fallout protection; (*b*) shelters in structures other than residences will accommodate those regular employees, students, and others who cannot reasonably be expected to reach their homes within one hour after a nuclear attack; and (*c*) an occupant of a shelter will receive no more than one one-hundredth of the radiation intensity prevailing in the exposed area surrounding it.

5. City, town, and village authorities under general standards established by state civil defense authorities be made primarily responsible for the administration and enforcement of this fallout protection program.

6. The legislature, as an incentive to shelter construction, (*a*) authorize deduction (over a 5-year period) of shelter construction costs from taxable income for New York state income tax purposes up to a maximum of $100 per planned shelter occupant; and (*b*) exclude for tax purposes shelter construction costs, up to such a maximum, from local property assessments and from any applicable state taxes based on property values.

7. The preparation of a state program of low-interest rate loans to assist those who cannot otherwise bear the financial burden of shelter construction.

"These are the basic elements of a program which I am convinced is imperative if we are not to abandon our responsibility for the worth and the dignity of each human life. By such a program, moreover, we will enable each individual to make a personal and constructive contribution to the preservation of peace, the deterrence of war, and the survival of our nation in the terrible event an aggressor should unleash nuclear weapons against us.

"Elected officials are entrusted with the responsibility of protecting the lives of all of their people. To fail to meet this responsibility with constructive action would break faith with the most solemn covenant of our democratic society.

"In the face of lesser perils, we, as a people, have not hesitated to legislate requirements for vaccination against disease, insurance for motorists and workmen, sanitation facilities, decent working conditions for employees, construction to minimize the dangers from fire, protection against pollution of air and water, and so on. Surely, the greater nuclear danger must not find us wanting in either the necessary wisdom or courage to meet it.

"The need for fallout protection is clear and urgent.

"Such protection is both feasible and obtainable.

"I urge a mandatory state program to secure it."

Approximate State Costs

(in millions of dollars)

Nonrecurring costs:	
Present buildings, excluding schools	18
Emergency headquarters	5
Initial survival items	4
Total, spread over 3 years	27
Per year, 1st 3 years	9
Recurring costs, annually:	
Civil defense and public information program	2
Shelters in new buildings	1
Maintenance costs, shelters and survival supplies	1
Income tax effects, for 7 years	2
Total per year, 1st 7 years	6
Total per year, thereafter	4

Approximate School Shelter and Survival Supplies Cost

Nonrecurring costs	
Present school buildings	110
Survival supplies and equipment	22
Total, spread over 3 years	132
Per year, 1st 3 years	44
Recurring costs, annually:	
Shelters in new school buildings	15
Supplies, new schools and maintenance of all supplies	5
Total per year	20